

AMENDMENTS TO THE CLAIMS:

Please amend claims 11, 16, 21, 22, 24, 25, 27, 28, 33, 35, 36, 38, 40, 42, 45, 51, 52, 54, 56, 59, 60 and 61 as follows:

11. (Amended) A semiconductor element module, comprising:
a package;
a semiconductor element within said package;
a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion bent in an outward direction relative to the side surface of said package, said open end portion being downwardly protruded from a plane including a bottom surface of said package; and
a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another.

16. (Amended) A semiconductor device comprising a substrate and a semiconductor element module mounted on said substrate, said semiconductor element module including:
a package;
a semiconductor element within said package;
a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion bent in an outward direction relative to the side surface of said package, said open end portion being downwardly protruded from a plane including a bottom surface of said package; and
a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said

package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another.

21. (Amended) A semiconductor element module, comprising:
a package having an opening for allowing an optical signal to pass therethrough;
an optical element located in said package for outputting or inputting the optical signal;
a plurality of leads for connecting said optical element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion bent in an outward direction relative to the side surface of said package, said open end portion being downwardly protruded from a plane including a bottom surface of said package; and
a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another,
and wherein each of said leads has an uppermost end which is lower than an uppermost end of said opening.

22. (Amended) A semiconductor element module, comprising:
a package having an inner bottom surface and an opening for allowing an optical signal to pass therethrough;
an optical element located in said package for outputting or inputting the optical signal;
a plurality of leads for connecting said optical element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion bent in an outward direction relative to the side surface of said package, said open end portion being downwardly protruded from a plane including a bottom surface of said package; and

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another,

and wherein each of said leads has an uppermost end which is lower than an uppermost end of said opening, said level difference having a surface which intersects the side surface of said package, and the surface of said level difference being higher than the inner bottom surface of said package.

24. (Amended) A semiconductor device comprising a substrate and a semiconductor element module mounted on said substrate,

said semiconductor element module including;

a package having an inner bottom surface and an opening for allowing an optical signal to pass therethrough;

an optical element located in said package for outputting or inputting the optical signal;

a plurality of leads for connecting said optical element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion bent in an outward direction relative to the side surface of said package, said open end portion being downwardly protruded from a plane including a bottom surface of said package; and

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another,

and wherein each of said leads has an uppermost end which is lower than an uppermost end of said opening, said level difference having a surface which intersects the side surface of said package, and the surface of said level difference being higher than the inner bottom surface of said package.

25. (Amended) A semiconductor element module, comprising;

a package having an opening for allowing an optical signal to pass therethrough;

an optical element located in said package for outputting or inputting the optical signal;

a mount having said optical element placed thereon for fixing said optical element to said package;

a plurality of leads for connecting said optical element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion bent in an outward direction relative to the side surface of said package, said open end portion being downwardly protruded from a plane including a bottom surface of said package; and

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another,

and wherein each of said leads has an uppermost end which is lower than an uppermost end of said opening, said level difference having a surface which intersects the side surface of said package, and the surface of said level difference being higher than a bottom surface of said mount.

27. (Amended) A semiconductor device comprising a substrate and a semiconductor element module mounted on said substrate,

said semiconductor element module including;

a package having an opening for allowing an optical signal to pass therethrough;

an optical element located in said package for outputting or inputting the optical signal;

a mount having said optical element placed thereon for fixing said optical element to said package;

a plurality of leads for connecting said optical element to an external circuit, said plurality of leads each having one end portion attached along a side surface of

said package and another open end portion bent in an outward direction relative to the side surface of said package, said open end portion being downwardly protruded from a plane including a bottom surface of said package; and

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another,

and wherein each of said leads has an uppermost end which is lower than an uppermost end of said opening, said level difference having a surface which intersects the side surface of said package, and the surface of said level difference being higher than a bottom surface of said mount.

28. (Amended) A semiconductor element module, comprising:

a package;

a semiconductor element within said package;

a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion having a tip which is downwardly protruded from a plane including a bottom surface of said package and which is oriented in an outward direction relative to said side surface of said package; and

a level difference at said side surface of the package adjacent to said bottom surface of the package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another.

33. (Amended) A semiconductor element module, comprising:

a package;

a semiconductor element within said package;

a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached along a side

surface of said package and another open end portion being downwardly protruded from a plane including a bottom surface of said package;

a level difference formed by a surface which intersects the side surface of said package adjacent to the bottom surface of said package and which is substantially perpendicular to said side surface and a portion of the leads which protrude downwardly therefrom so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another; and

a brazing material disposed between the surface of said level difference and the downwardly protruding portion of the leads to secure the attachment of said leads to said package.

35. (Amended) A semiconductor element module, comprising:
a package having an opening for allowing an optical signal to pass therethrough;

an optical element located in said package for outputting or inputting the optical signal;

a plurality of leads for connecting said optical element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion being downwardly protruded from a plane including a bottom surface of said package; and

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another,

and wherein each of said leads has an uppermost end which is lower than an uppermost end of said opening.

36. (Amended) A semiconductor element module, comprising:

a semiconductor element;

a package having walls that surround said semiconductor element;

a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached along the exterior surface of a side wall of said package and another open end portion being downwardly protruded from a plane including a bottom surface of said package;

a level difference that forms a recess away from the exterior surface of the side wall of said package adjacent to the bottom surface of said package, said recess having a width which is greater than the thickness of said side wall, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another; and

a brazing material disposed within said recess to secure the attachment of said leads to said package.

38. (Amended) A semiconductor element module, comprising;
a package having an inner bottom surface and an opening for allowing an optical signal to pass therethrough;

an optical element located in said package and supported by said inner bottom surface, for outputting or inputting the optical signal;

a plurality of leads for connecting said optical element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open portion being downwardly protruded from a plane including a bottom surface of said package; and

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another,

and wherein each of said leads has an uppermost end which is lower than an uppermost end of said opening, said level difference having a surface which intersects the side surface of said package, and the surface of said level difference being higher than the inner bottom surface of said package.

40. (Amended) A semiconductor element module, comprising:
a package having an opening for allowing an optical signal to pass
therethrough;
an optical element located in said package for outputting or inputting the
optical signal;
a mount having said optical element placed thereon for fixing said optical
element to said package;
a plurality of leads for connecting said optical element to an external circuit,
said plurality of leads each having one end portion attached along a side surface of
said package and another open end portion being downwardly protruded from a
plane including a bottom surface of said package; and
a level difference at the side surface of said package adjacent to the bottom
surface of said package so as to form a space between said leads and said
package, wherein said level difference serves to avoid capillary flow of solder to
prevent short circuiting between leads that are adjacent to one another,
and wherein each of said leads has an uppermost end which is lower than an
uppermost end of said opening, said level difference having a surface which
intersects the side surface of said package, and the surface of said level difference
being higher than a bottom surface of said mount.

42. (Amended) A semiconductor element module, comprising:
a package;
a semiconductor element within said package;
a plurality of leads for connecting said semiconductor element to an external
circuit, said plurality of leads each having one end portion attached along a side
surface of said package and another open end portion for attachment to a mounting
surface, said open end portion being downwardly protruded from a plane including a
bottom surface of said package and being shaped to provide a space between the
bottom surface of said package and the mounting surface;

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another; and

a brazing material disposed within said level difference to secure the connection of said leads to said package, to thereby enable said space between the bottom surface of said package and the mounting surface to be no greater than a prescribed amount.

45. (Amended) A semiconductor device comprising a substrate and a semiconductor element module mounted on said substrate, said semiconductor element module including;

a package;

a semiconductor element within said package;

a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion for attachment to a mounting surface, said open end portion being downwardly protruded from a plane including a bottom surface of said package and being shaped to provide a space between the bottom surface of said package and the mounting surface;

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another; and

a brazing material disposed within said level difference to secure the connection of said leads to said package, to thereby enable said space between the bottom surface of said package and the mounting surface to be no greater than a prescribed amount.

51. (Amended) A semiconductor device comprising a substrate and a semiconductor element module mounted on said substrate,
said substrate having a plurality of through-holes and conductor patterns;
said semiconductor element module, including:
a package;
a semiconductor element within said package;
a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached to a side surface of said package and another open end portion being downwardly protruded from a plane including a bottom surface of said package, at least one of said plurality of leads being connected to a high frequency terminal of said semiconductor element module; and
a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another;
and wherein each lead connected to a high frequency terminal is surface-mounted onto said conductor pattern, while each of the remaining leads is inserted into said each of said through-holes.

52. (Amended) A semiconductor element module, comprising:
a package;
a semiconductor element within said package;
a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion of a first width attached along a side surface of said package, an open end portion of a second, narrower width being downwardly protruded from a plane including a bottom surface of said package, and a level difference which defines a transition from said first width to said second width; and
a brazing material located at an edge of said package to secure the attachment of said leads to said package;

wherein said level difference is located lower than said brazing material, and serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another.

54. (Amended) A semiconductor device, comprising:
a substrate having a mounting surface on which conductor patterns are formed; and
a semiconductor element module having:
a package;
a semiconductor element within said package;
a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion of a first width attached along a side surface of said package, an open end portion of a second, narrower width being downwardly protruded from a plane including a bottom surface of said package, and a level difference which defines a transition from said first width to said second width, wherein each of said leads is bent at a point below said level difference, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another; and
a brazing material located at an edge of said package to secure the attachment of said leads to said package, wherein said level difference is located lower than said brazing material;
wherein said open end portions of said leads on said semiconductor element module are soldered onto said conductor patterns so that a bottom of said package forms a prescribed space with said mounting surface.

56. (Twice Amended) A semiconductor element module, comprising:
a package;
a semiconductor element within said package;
a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having a wide portion connected to a side surface of said package and a narrow portion that extends downwardly beyond the bottom

surface of said package, wherein said wide portion extends below the bottom edge of said side surface, and

a level difference in said side surface of said package adjacent said bottom surface that forms a space between the wide portion of each lead that extends below the bottom edge of said side surface and the bottom of said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another.

59. (Amended) A semiconductor element module, comprising:

a package;

a semiconductor element within said package;

a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion having a tip which is downwardly protruded from a plane including a bottom surface of said package and which is oriented in an outward direction relative to said side surface of said package;

a level difference at said side surface of said package adjacent to said bottom surface of said package so as to form a space between said leads and said package;

wherein said level difference has a first surface which intersects the side surface of said package and which is substantially perpendicular to said side surface and a portion of the leads which protrude downwardly therefrom, and a second surface which intersects said first surface and which is substantially parallel to said side surface, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another;

wherein said semiconductor element module further includes a brazing material that is disposed between said first surface and each of the downwardly protruding portions of the leads to secure the attachment of said leads to said package; and

wherein said brazing material forms a brazed joint fillet that is displaced from said second surface.

60. (Amended) A semiconductor device comprising a substrate and a semiconductor element module mounted on said substrate, said semiconductor element module including:

a package;

a semiconductor element within said package;

a plurality of leads for connecting said semiconductor element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion having a tip which is downwardly protruded from a plane including a bottom surface of said package and which is oriented in an outward direction relative to said side surface of said package;

a level difference at said side surface of said package adjacent to said bottom surface of said package so as to form a space between said leads and said package;

wherein said level difference has a first surface which intersects the side surface of said package and which is substantially perpendicular to said side surface and a portion of the leads which protrude downwardly therefrom, and a second surface which intersects said first surface and which is substantially parallel to said side surface, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another;

wherein said semiconductor element module further includes a brazing material that is disposed between said first surface and each of the downwardly protruding portions of the leads to secure the attachment of said leads to said package; and

wherein said brazing material forms a brazed joint fillet that is displaced from said second surface.

61. (Amended) A semiconductor element module, comprising:

a package having an opening for allowing an optical signal to pass therethrough;

an optical element located in said package for outputting or inputting the optical signal;

a mount disposed between said optical element and said package;

a plurality of leads for connecting said optical element to an external circuit, said plurality of leads each having one end portion attached along a side surface of said package and another open end portion bent in an outward direction relative to the side surface of said package, said open end portion being downwardly protruded from a plane including a bottom surface of said package; and

a level difference at the side surface of said package adjacent to the bottom surface of said package so as to form a space between said leads and said package, wherein said level difference serves to avoid capillary flow of solder to prevent short circuiting between leads that are adjacent to one another,

each of said leads having an uppermost end which is lower than an uppermost end of said opening, said level difference having a surface which intersects the side surface of said package, and the surface of said level difference being higher than a bottom surface of said mount.